Claims

I claim:

1. A center beam rail road car comprising:

a deck structure for carrying vertical loads, said deck structure being carried by rail car trucks, said deck structure having first and second end portions and a medial portion lying between said first and second end portions, said first and second end portions being stepped upwardly relative to said medial portion;

first and second end bulkheads extending upwardly from opposite ends of said deck structure;

a center beam assembly running lengthwise along said rail road car between said bulkheads, said center beam assembly standing upwardly of said deck structure; and

at least one of said first and second end portions of said deck being stepped upward relative to said medial portion of said deck a distance of at least 30 inches.

2. The center beam rail road car of claim 1 wherein one of said end portions of said deck structure is stepped upward relative to said medial portion of said deck structure a distance of about 33 5/8 inches.

3. The center beam rail road car of claim 1 wherein said distance lies in the range of 30" to 33 -3/4".

4. The center beam railroad car of claim 1 wherein said distance is commensurate to a nominal 32" bundle of lumber.

5. The center beam railroad car of claim 1 wherein said bulkheads have a height exceeding AAR Plate `C'.

6. The center beam car of claim 5 wherein said bulkheads fall within AAR Plate `F'.

7. The center beam rail road car of claim 1 wherein said center beam assembly includes a top chord member extending between said end bulkheads.

8. The center beam rail road car of claim 7 wherein said top chord member has smooth sides against which to place lading.

9. The center beam rail road car of claim 1 wherein said center beam assembly includes an array of posts extending upwardly from said deck, said posts having flanges against which to place lading.

10. The center beam rail road car of claim 9 wherein said posts have tabs extending upwardly from said flanges, and said center beam assembly includes a top chord member seated between said tabs.

11. The center beam rail road car of claim 9 wherein said center beam assembly includes a top chord member mounted flush with said flanges of said posts.

12. The center beam rail road car of claim 9 wherein each of said posts has a pair of first and second flanges, each of said flanges presents a laterally facing bearing face against which to position stacked bundles of lumber, and a web extends between said flanges.

13. The center beam rail road car of claim 1 wherein:

a center sill runs between said bulkheads, said center sill having first and second end portions, and a medial portion between said first and second end portions;

said center beam assembly includes an array of posts standing upwardly from said center sill;

a group of said posts of said center sill extend upwardly from said medial portion of said center sill; and

said group of said posts, said medial portion of said center sill, and said medial portion of said deck co-operate to define bunks to either side of said center sill for receiving stacked bundles of lumber.

14. The center beam rail road car of claim 9 wherein said flanges of said posts have smoothly radiused edges.

15. The center beam rail road car of claim 1 wherein winches are mounted along said deck. structure, and are operable to tighten bundles of lading next to said center beam assembly.

16. The center beam rail road car of claim 1 wherein said rail road car further comprises:

a center sill extending along said rail road car, said center sill having an upper flange, a lower flange, and at least one upright web connecting said upper and lower, flanges;

said upper flange lying at a height corresponding to said first end portion of said deck structure; and

said lower flange lying at a height corresponding to said medial portion of said deck structure.

17. The center beam rail road car of claim 1 wherein said rail road car further comprises:

a center sill extending along said rail road car, said center sill having an upper flange, a lower flange, and at least one upright web connecting said upper and lower flanges;

said upper flange lying at a height corresponding to said first end portion of said deck structure; and

said lower flange lying at a height corresponding to said medial portion of said deck structure.

18. The center beam rail road car of claim 1 wherein said medial portion of said deck structure is at least 28' - 0" long.

19. The center beam rail road car of claim 1 wherein said medial deck portion lying between said two trucks is at least 40' - 0" long.

20. The center beam rail road car of claim 1 wherein said medial portion of said deck structure has a length chosen from the set of lengths consisting of (a) about 28 1/2 ft; (b) about 32 1/2 ft; (c) about 36 1/2 ft (d) about 40 1/2 ft.

21. The center beam rail road car of claim 1, wherein said first end portion of said deck structure lies over a first of said trucks, said first truck having a truck center, and said first end portion of said deck structure extends more than 8 feet longitudinally outboard of said truck center of said first truck.

22. The center beam railroad car of claim 1 wherein said first end portion of said deck structure lies over a first of said trucks, said first truck has a truck center, and said first end portion of said deck structure extends more than 4 feet longitudinally inboard of said truck center of said first truck.

23. The center beam railroad car of claim 21 wherein said first end portion of said deck structure extends more than 4 feet longitudinally inboard of said truck center of said first truck.

24. The center beam railroad car of claim 1 wherein:

each said truck has a truck center, and said first portion of said deck structure extends past a first of said truck centers;

said center beam assembly includes an array of posts and diagonal braces;

a post of said array of posts stands upwardly of said first truck center, and at least two of said posts are pitched longitudinally outboard of said first truck center between said first truck center and said first bulkheads.

25. The center beam railroad car of claim 1 wherein:

each said truck has a truck center, and said first deck portion of said deck structure extends past a first of said truck centers;

said center beam assembly includes an array of posts and diagonal braces;

a post of said array of posts stands upwardly of said first truck center, and a further post stands upwardly of said end deck portion longitudinally inboard of said truck center.

26. The center beam rail road car of claim 1 wherein said first end portion of said deck structure has a load bearing interface lying more than 42" above TOR.

27. The center beam railroad car of claim 1 wherein said first end portion of said deck structure includes a deck sheet lying more than 42" above TOR.

28. The center beam railroad car of claim I wherein said first end portion of said deck structure includes an end deck lading interface carried between 52 1/2" and 54 1/2" above TOR.

29. The center beam railroad car of claim 1 wherein said first end portion of said deck structure includes a deck sheet carried between 52 1/2" and 54 1/2" above TOR.

30. The center beam railroad car of claim 1 wherein said end portions of said deck structure are bounded by end deck side sill portions running alongside thereof, said end deck side sill portions each having an upper flange having an upper surface lying between 52 1/2" and 54 1/2" above TOR.

31. The center beam railroad car of claim 1 wherein said car has a coupler mounted thereto to permit coupling to other railroad cars, said coupler having a coupler centerline height, and said first end portion of said deck structure has a first end portion lading interface carried between 18 1/2" and 20 1/2" higher than said coupler centreline.

32. The center beam railroad car of claim 1 wherein said car has a coupler mounted at said first end thereof, said coupler having a coupler centerline height, and said end deck portion includes an end deck sheet between 18 1/2" and 20 1/2" above said coupler centreline.

33. The center beam rail road car of claim 1 further comprising:

a center sill running along said deck structure;

said first end portion of said deck structure having a first end deck sheet;

said center sill having a first center sill end portion, said center sill end portion having an upper flange and a pair of spaced apart webs extending downwardly from said upper flange;

a draft pocket cap plate mounted within said first center sill end portion between said pair of spaced apart webs, said draft pocket cap plate lying at a lower level than said deck sheet; and

a draft pocket defined between said pair of webs and below said draft pocket cap plate.

34. The center beam rail road car of claim 33 wherein a first bolster extends laterally from said main sill to support said first end portion of said deck structure, said bolster having an upper flange extending in a plane lying at a greater height than said draft pocket cap plate.

35. The center beam rail road car of claim 33 wherein:

said center sill has a medial portion adjacent to said medial portion of said deck structure, and first and second end portions adjacent to said first and second end portions of said deck structure respectively;

said medial portion of said center sill has an upper flange, a pair of spaced apart webs extending downwardly from said upper flange and a lower flange mounted to said webs, said upper flange, said lower flange and said webs of said center sill defining a hollow box beam;

said medial portion of said deck structure has a deck sheet; and

said lower flange of said medial portion of said center sill is mounted at a level corresponding to said deck sheet of said medial portion of said deck structure.

36. The centerbeam railroad car of claim 1 wherein said railroad car has a center sill having a first end portion, said first end portion of said center sill including two vertical webs and a horizontal plate co-operating with said vertical webs to define a draft pocket below said horizontal plate and between said webs, and said first end portion of said deck structure has a lading support interface carried between 10 1/2" and 12 1/2 higher than said horizontal plate.

37. The center beam rail road car of claim 1 wherein said rail road car has a center sill having a first end portion,' said first end portion of said center sill including a pair of spaced apart vertical webs and a horizontal plate co-operating with said vertical webs to define a draft pocket below said horizontal plate and between said webs, and said first end portion of said deck structure has a deck sheet carried between 10 1/2" and 12 1/2" higher than said horizontal plate.

38. The centerbeam railroad car of claim 1 wherein:

said railroad car has a center sill having a first end portion, said first end portion of said center sill including two vertical webs and a horizontal plate co-operating with said vertical webs, a draft being defined pocket below said horizontal plate and between said webs;

said medial deck portion has a lading support interface carried at a first height lying lower than said horizontal plate by a first distance;

said first end portion of said deck structure has a lading support interface carried at a second height lying higher than said horizontal plate by a second distance; and a ratio of said first distance to said second distance lies in the range of (a) 23 1/8 : 10 1/2 to (b) 12 1/2 : 17 1/2.

39. The center beam rail road car of claim 36 wherein said end portion of said center sill includes a top flange, said vertical webs extend downwardly of said top flange, and said horizontal plate is spaced downwardly of said top flange between said vertical plates.

40. The center beam rail road car of claim 1 wherein:

said rail road car has first and second ends;

a first coupler is mounted at said first end of said railroad car, said coupler having a coupler centerline height;

said medial portion of said deck structure has a lading support interface carried at a height lying lower than said coupler centreline height by a first distance;

said first end portion of said deck structure has a lading support interface carried at a height lying higher than said coupler centreline height by a second distance; and

a ratio of said first distance to said second distance lies in the range of (a) 9 1/2 :20 1/2 to (b) 15 1/8 : 18 1/2.

41. The center beam railroad car of claim 1 wherein:

said deck structure has left and right hand laterally outboard margins and respective first and second side sills running therealong, each said side sill including a pair of end side sill portions running along said first and

second end portions of said deck structure respectively, and a medial side sill portion running along said medial portion of said deck structure;

said deck structure includes transition sections joining each said medial side sill portion to said first and second side sill portions lying longitudinally outboard thereof respectively;

each said transition section including

a first flange standing upwardly from an end of said medial side sill portion;

a second flange extending upwardly and longitudinally outboard relative to said medial side sill portion; and

a web extending between said first and second flanges.

42. The center beam railroad car of claim 41 wherein said second flange of said transition section terminates at the end side sill portion adjacent to said transition section.

43. The center beam railroad car of claim 1 wherein:

said deck structure has left and right hand laterally outboard margins and respective first and second side sills running therealong, each said side sill including a pair of end side sill portions running along said first and second end deck portions respectively, and a medial side sill portion running along said medial deck portion;

said deck structure includes transition sections joining each said medial side sill portion to the first and second side sill portions lying longitudinally outboard thereof respectively;

each said transition section including a flange member running from a low, longitudinally inboard end adjacent to an end of the medial side sill portion adjoining said transition section, to a higher, longitudinally outboard end adjacent the side sill end potion adjoining said transition section; and

a web member having an edge running along, and joined to, said flange member.

44. The center beam railroad car of claim 43 wherein said side sill end portion adjoining to said transition section has a lower flange, an upper flange, and a web running between said upper

and lower flanges, and there is web continuity between said web of said side sill end portion and said web member running along, and joined to, said flange member of said transition section.

45. The center beam railroad car of claim 1 wherein:

said deck structure has left and right hand laterally outboard margins and respective first and second side sills running therealong, each said side sill including a pair of end' side sill portions running along said first and second end portions of said deck structure, respectively, and a medial side sill portion running along said medial portion of said deck structure;

said deck structure includes transition sections joining each said medial side sill portion to said first and second side sill portions lying longitudinally outboard thereof respectively;

each said transition section includes a transition bulkhead extending upwardly from said medial deck portion to the end deck portion thereadjacent.

46. The center beam railroad car of claim 1 wherein said medial portion of said deck structure includes a longitudinal stringer running thereunder.

47. The center beam railroad car of claim 1 wherein:

said deck structure has left and right hand laterally outboard margins and respective first and second side sills running therealong, each said side sill including a pair of end side sill portions running along said first and second end portions of said deck structure, respectively, and a medial side sill portion running along said medial portion of said deck structure; and

said medial portion of said deck structure has a longitudinal stringer running thereunder parallel to, and laterally inboard of, said medial side sill potion.

48. The center beam rail road car of claim 1, wherein:

said rail road car has a pair of side sills extending along said deck structure;

said side sills each have a side sill medial portion mounted to said medial portion of said deck structure;

said side sills each have side sill end portions running along said end portions of said deck structure;

each of said side sills has a knee joining said side sill medial portion to each of said side sill end portions;

each said knee has a longitudinally inboard flange, a longitudinally outboard flange, and webbing extending therebetween;

said longitudinally outboard flange has a lower extremity and an upper extremity; and said lower extremity lies at a longitudinally inboard station relative to said upper extremity.

49. The center beam rail road car of claim 1 wherein:

said rail road car has a pair of side sills extending along said deck structure;

said side sills each have a medial side sill portion mounted to said medial portion of said deck structure;

said side sills each have end side sill portions mounted to said end portions of said deck structure; and

each said medial side sill portion has a medial side sill portion web extending from a first margin to a second margin, said first margin lying at a greater height than said second margin, and said first margin lying a further distance transversely outboard than said second margin.

50. The center beam rail road car of claim 49 wherein said medial portion of said deck structure has at least one lading securement apparatus mounted to said medial. portion side sill web.

51. A center beam rail road car comprising:

a center sill carried by rail car trucks, said center sill having first and second ends;

first and second end bulkheads extending upwardly from opposite ends of said center sill;

a deck structure running between said bulkheads, said deck structure being supported from said center sill, said deck structure having first and second end portions and a medial portion lying between said first and second end portions;

a center beam assembly running lengthwise between said bulkheads, said center beam assembly standing upwardly of said deck structure; and

said first and second end portions being stepped upwardly relative to said medial portion by a step height distance corresponding to a nominally 32" high bundle of lumber.

52. A center beam rail road car, comprising:

a center sill carried by rail car trucks, said center sill having first and second ends;

first and second end bulkheads extending upwardly from said first and second ends of said center sill;

a center beam assembly running lengthwise along said center sill, said center beam assembly standing upwardly from said center sill;

a deck structure running between said bulkheads, said deck structure and said center beam assembly co-operating to define bunks for lading to either side thereof;

said deck structure having a pair of first and second end portions and a medial portion carried between said end portions;

said medial portion of said deck structure being supported by load bearing cross-members mounted to said center sill;

said first end portion, said second end portion and said medial portion of said deck structure having respective load bearing interfaces for receiving bundles of lumber thereabove; said load bearing interfaces being supported from below by said load bearing cross members; and

said end portions of said deck structure being stepped upwardly relative to said medial portion of said deck structure by a step height corresponding to a bundle of lumber of a standard height, said step height being at least 30 inches.

53. A drop deck center beam rail road car comprising:

a center sill mounted on a pair of first and second spaced apart rail car trucks;

a deck structure, said deck structure being supported from said center sill, said deck structure having first and second ends;

a pair of first and second bulkheads mounted at said first and second ends of said deck structure respectively, said bulkheads standing upwardly therefrom;

a center beam assembly standing upwardly from said center sill and running between said bulkheads, said center beam assembly co-operating with said center sill to carry vertical loads in bending;

said deck structure having first and second end portions and a medial portion located therebetween;

said first and second end portions and said medial portion of said deck structure each having a load supporting interface capable of bearing lading thereon;

said load supporting interface of said medial deck portion being stepped downwardly relative to said load supporting interface of said first and second end deck portions by a step height distance corresponding to a nominally 32" high bundle of lumber, said step height distance being at least 30";

said first and second end portions and said medial portion of said deck structure each having load supporting cross beam members mounted from said center sill;

said cross beam members supporting said respective load bearing interfaces from beneath;

said first and second end portions and said medial portion of said deck structure being loadable by forklift; and

said medial portion of said deck structure, said center sill, and said center beam assembly co-operating to define bunks to either side thereof for accommodating stacked bundles of lumber, and said center beam assembly presenting surfaces against which to tighten the stacked bundles of lumber.

54. A center beam rail road car, comprising:

a center beam car body mounted on a pair of first and second spaced apart rail car trucks, said body having

a deck structure carried between a pair of first and second end bulkheads,

a center beam assembly running between said bulkheads, said center beam assembly extending upwardly of said deck structure;

said deck structure including first and second end deck portions mounted over said respective first and second trucks, and a medial deck portion lying between said trucks, said medial deck portion being stepped downwardly relative to said first and second end deck portions;

said deck structure having laterally outboard side sills running therealong, each of said side sills having first and second end deck side sill portions mounted to respective ones of said first and second end decks, and a medial side sill portion mounted to said medial deck portion;

said medial deck portion being joined to said end deck portions by knee braces;

each of said knee braces having a longitudinally inboard flange adjacent to said medial portion, said inboard flange extending vertically; and

each of said knee braces having a longitudinally outboard flange, said longitudinally outboard flange extending from a lower portion thereof lying at a first height relative to top of rail, to an upper portion thereof lying at a second, greater, height relative to top of rail, and said upper portion lies further from said longitudinally inboard flange than said lower portion.

55. A center beam rail road car comprising:

a deck structure for carrying vertical loads, said deck structure being carried by rail car trucks, said deck structure having first and second end. portions and a medial portion lying between said first and second end portions, said first and second end portions being stepped upwardly relative to said medial portion;

first and second end bulkheads extending upwardly from opposite ends of said deck structure;

a center beam assembly running lengthwise along said rail road car between said bulkheads, said center beam assembly standing upwardly of said deck structure;

said deck structure having left and right hand laterally outboard margins and respective first and second side sills running therealong, each said side sill

including a pair of side sill end portions running along said first and second end deck portions respectively, and a medial side sill portion running along said medial deck portion;

said deck structure includes transition sections joining each said medial side sill portion to the first and second side sill portions lying longitudinally outboard thereof respectively;

each said transition section including

a flange member running from a low, longitudinally inboard end adjacent to an end of the medial side sill portion adjoining said transition section, to a higher, longitudinally outboard end adjacent the side sill end portion adjoining said transition section; and

a web member having an edge running along, and joined to, said flange member.

56. The center beam railroad car of claim 55 wherein said side sill end portion adjoining to said transition section has a lower flange, an upper flange, and a web running between said upper and lower flanges, and there is web continuity between said web of said side sill end portion and said web member running along, and joined to, said flange member of said transition section.